

Amendments to the Claims

Please amend Claim 1-8, and add new Claims 9-11, as follows.

1. (Currently Amended) A measuring device comprising:

light source means for emitting a linearly polarized light;

polarization orientation setting means for switching the polarization

orientation of the light flux from said light source means between at least two orientations

and making the light flux exit;

light re-combining means for re-combining ~~the~~ light fluxes split from the

light flux from said polarization orientation setting means after passing ~~said~~ the light fluxes

through an object to be measured and a reference ~~plane~~ surface to obtain interference

lights;

~~analyzing means~~ said light re-combining means for switching the

polarization orientation so as to allow to pass only the same polarized component as the

polarized light incident on the object to be measured, ~~to pass~~, out of the interference lights

obtained through said light synthesizing means;

image pickup means for detecting interference information of the light ~~flux~~

which has passed through said analyzing means; and

calculating means for calculating at least one of the average wavefront and

the retardation of the object to be measured, on the basis of the wavefront information

obtained when using the light ~~fluxes~~ in the two polarization states switched by said

polarization orientation setting means.

2. (Currently Amended) A measuring device in accordance with claim 1,
wherein said light synthesizing means comprises a twyman-Green-type interferometer.

3. (Currently Amended) A measuring device in accordance with claim 1,
wherein said light synthesizing means comprises a Fizeau-type interferometer.

4. (Currently Amended) A measuring device comprising:
a polarization orientation setting member, which is disposed in the optical
path for ~~the~~ light fluxes including a light flux incident on an object to be measured, and
which ~~have~~ has a function of switching the polarization orientation of the light ~~flux~~ fluxes
including the light flux incident on ~~said~~ the object to be measured between at least two
orientations, and making the light ~~flux~~ fluxes exit;

an image pickup member;

an analyzer, which is disposed on the light incident side of said image
pickup member, and which has a function of switching the polarization orientation so as to
allow to pass only the same polarized component as the polarized light incident on the
object to be measured, ~~pass~~, out of the interference light fluxes including the light flux
which is made to exit from ~~said~~ the object to be measured; and

a calculating section connected to said image pickup member, said
calculating section calculating at least one of the average wavefront and the retardation of
the object to be measured, on the basis of the measured wavefront obtained from the output
of said image pickup member, when using the light fluxes in the at least two polarization
orientations switched by said polarization orientation setting member.

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5. (Currently Amended) A measuring device in accordance with claim 4,
wherein ~~said~~ the interference light fluxes are formed by a twyman-Green-type
interferometer.

6. (Currently Amended) A measuring device in accordance with claim 4,
wherein ~~said~~ the interference light fluxes are formed by a Fizeau-type interferometer.

7. (Currently Amended) A measuring method comprising:
arranging an object to be measured;
measuring a wavefront of a first linearly polarized light from the object to
be measured; and

measuring a wavefront of a second linearly polarized light from the object
to be measured,

wherein the polarization orientation of the first and second linearly
polarized lights differ

making light fluxes in mutually different polarization orientations incident
on said object to be measured;

measuring a wavefront for every polarization orientation of the light fluxes
from said object to be measured; and

calculating the average wavefront and/or the retardation using the results of
said wavefront measuring.

8. (Currently Amended) A measuring method in accordance with claim 7, wherein the difference of the polarization orientation between the first and second linearly polarized lights is 90 degrees ~~wherein said light fluxes in the mutually different polarization orientations are light fluxes in two different polarization orientations.~~

9. (New) A measuring method in accordance with claim 7, further calculating at least one of a retardation and an average wavefront of the object to be measured.

Amended

10. (New) An interferometer comprising:
light source means for emitting linearly polarized light;
polarization orientation changing means for changing a polarization orientation of the polarized light incident on an object to be measured; and
image pickup means for detecting the polarized light after passing through an object to be measured as an interference signal.

11. (New) An interferometer in accordance with claim 10, further comprising a calculating means for calculating at least one of a retardation and an average wavefront of the object to be measured.